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DEP citizens' bulletin

The Solid Waste Story: moving toward a solution

by Douglas Starr

The number is 3,350,000, and you can imagine it in different ways: One ton for every man, woman and child in the state. Enough to cover the Connecticut shoreline with a pile one foot high by a half-mile wide.

The material is solid waste, and 3,350,000 tons is the amount we in Connecticut produce and must dispose of each year.

Traditionally, solid waste has been disposed of by burying it in the ground. In areas where ground space was not sufficient the refuse was burned first to reduce its volume. Often, however, the burning was incomplete, and as a result contributed to air pollution. In some areas the waste was not covered properly, giving shelter to rodents and insect pests, and causing pollution of the surrounding air, water and land. And even in areas where solid waste was properly disposed of, municipalities faced the problem of finding appropriate ground space. In 1972 it was estimated that if conventional disposal practices were to continue all available land for solid waste disposal would be used up by the year 2000.

These were the problems faced by the Solid Waste Management Unit of the newly-formed Department of Environmental Protection in 1971. Four years later, the state's solid waste problem is significantly closer to being managed, though by no means solved.

BACKGROUND

Connecticut's Solid Waste Management Program began taking shape in 1971 when the legislature passed two waste-related bills. The first of these provided that the Department of Health write up and enforce strict regulations for the management of waste disposal sites. The second bill transferred these responsibilities to the Solid Waste Management Unit of the newly formed Department of Environmental Protection.

Part of the '71 legislation required the preparation of a long-term plan for statewide management of solid wastes. Lacking the resources to complete such a plan, DEP contracted the General Electric Company to assist in preparing it.

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The GE/DEP plan proposed a statewide system of resource recovery plants as a long-term answer to the problems of dwindling land space and outmoded incineration. In resource recovery plants recyclable materials are separated from the waste stream while combustibles--burnable materials like wood, leaves and plastics--are converted to a fuel that can be fed into utility company boilers. The plan estimated that 10% of the state's electricity could be produced this way. At the same time, the volume of incoming waste material would be reduced by 90 - 98%, leaving only a small quantity of clean rubble to be disposed of.

The plan proposed that an independent agency be created to administer the construction and operation of resource recovery plants: the Connecticut Resource Recovery Authority. A nonprofit public service corporation, CRRA was created by the legislature in 1973.

Resource recovery had been tried on a small scale -- notably in St. Louis and Nashville -- but had never been done statewide. Connecticut would be the first.

THE PLAN: how it's set up

Overall supervision for solid waste management in the state belongs to DEP. The Solid Waste Management Unit is responsible for regulations, permits, inspections, and training programs for the operators of solid waste disposal sites. DEP also requires that towns submit 20 year plans for the long-term management of solid wastes in their areas to "maximize resource recovery and minimize environmental impact."

To satisfy this requirement, towns may tie-in with the regional resource recovery plant, if one is proposed for the area. Or they may plan local recycling programs, coupled with well-maintained sanitary landfills and efficient incineration.

The resource recovery option is offered by the Connecticut Resource Recovery Authority (CRRA). The organization plans a statewide system of between 6 and 9 resource recovery facilities, as dictated by local needs. Towns that tie-in to the system will contract with CRRA to remove their solid waste for a fee competitive with or lower than that of conventional removal. Residue from the facility will be buried in regional disposal sites.

THE UPDATE

CRRA: Construction is expected to begin on the first resource recovery plant by June, 1976 in Bridgeport. The facility will process 1200 to 1500 tons per day from 13 towns in the Greater Bridgeport area. Users' fees are expected to be about $14 per ton, which may be reduced as products are recovered. In comparison, the cost of incineration in a facility that meets air pollution requirements is about $12 per ton, plus $5 to $6 per ton disposal costs. The resource recovery users' fee includes all costs.

The Bridgeport facility is expected to be operational by late 1977 or early 1978. As originally proposed, combustibles were to be converted to a dry, shredded fuel resembling flakes of dried newsprint that could be mixed with oil at utility company boilers. But now a new fuel is proposed--a black, graphite-like powder that, according to its producers, is easier to transport than dry shredded fuel and is more suited to boiler use.

The fuel--ECO II FUEL--is produced by Combustion Equipment Associates, which was recently subcontracted to build the Bridgeport facility. The original contractor--Garrett Research and Development Corporation--was dissolved in a reorganizational move by its parent company, Occidental Petroleum Corporation. Though subcontractors have been changed, construction costs are expected to remai the same: about $30 million for the plan and $20 million for disposal and transfe sites. CRRA raises the money by issuing tax exempt bonds. The bonds are repaid by the earnings from users' fees.

A tentative agreement has been reached between CRRA and the United Illuminating Company (UI) to use resourc recovery fuel at UI's Harbor Station in Bridgeport. Under the terms of a "lette of intent" from UI to CRRA, the utility company provisionally agreed to use the fuel, pending the outcome of a test firing at its boilers. The cost of the firing, as well as that of all boiler conversions necessary to use the fuel, is to be paid for by CRRA. If the fuel is judged by UI to cause no equipment damage, impairment of operations or rise in cost, the utility will buy it from CRRA on a monthly basis.

It should be noted that the preliminary agreement concerns the use of the original dry, shredded fuel. No formal agreement has yet been reached involving the ECO II FUEL.

In reference to the change, a spokesman for UI said, "We're still enthusiastic about the project, though the next stage of the agreement is in CRRA's hands."

Rita Hogen, Director of Governmental and External Affairs for CRRA, said, "The original letter will be reviewed, and we expect to draft a new one based on the same principle."

To a large extent, what happens at the Bridgeport facility will forecast how resource recovery will go for the rest of the state, not only technologically but politically. Future processes will be decided based on how ECO II FUEL works out, and the willingness with which communities choose CRRA as part of their long-term plans will depend on Bridgeport's success.

Charlotte Reid, Chairperson of the Solid Waste Advisory Council, the body which provides local input to the CRRA, noted that "communities outside the Bridgeport area are hesitant to tie-in with CRRA. Because of difficult economic times they're afraid that the users' fees will be higher than predicted, that they will be driven up by the interest on the bond issue."

"At the same time," she says, "there will probably be a rush to join if the Bridgeport project is successful."

The Solid Waste Advisory Council is an advisory body consisting of representatives from local communities, industry, the general public and environmental groups. Its third meeting will take place sometime this month, primarily "to determine exactly what the role of the Council will be," according to Reid. "We'd like it to be a link between local communities and the CRRA's Board of Directors."

Hogen agreed. "We'd like the Council to help feel the pulse of the general public and get the towns involved so we can react to their needs. We hope it will be a very active group."

WHAT IS "solid waste"?

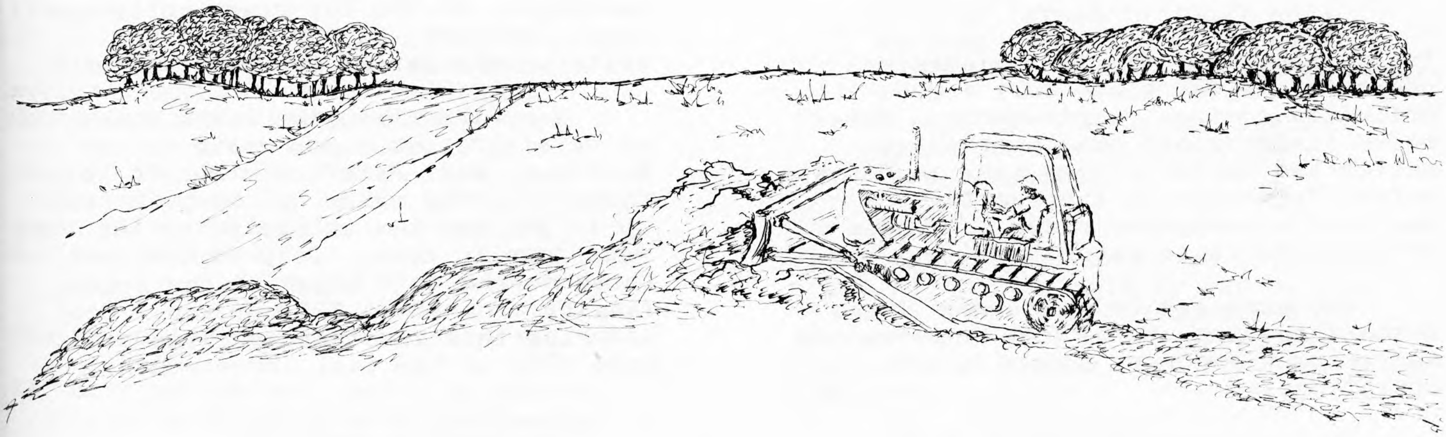
According to the Connecticut general statutes solid waste means "useless, unwanted or discarded materials." It consists of paper, cans, brush, grass clippings, garbage (which actually means "waste food"), industrial materials; and larger items such as tree stumps, demolition debris, appliances, tires, and cars. An average ton of solid waste in Connecticut typically contains the following components:

component	% by weight
paper	37.0
glass	9.0
metals	8.4
plastics	1.4
leather, rubber, textiles, wood	6.0
garbage, yard wastes	10.0
moisture	25.0
miscellaneous	3.2

Joseph Boren, Director of DEP's Solid Waste Management Unit, says that though resource recovery is an important tool in solid waste management, it is not, by itself, the complete answer. "Resource recovery facilities themselves will require disposal sites," he noted, "and these must be properly managed. In addition, towns that do not contract with CRRA will need assistance in running their own management programs."

Boren gave this rundown of solid waste problems and where they stand at this time:

Landfill--Of the 144 municipal landfill sites in Connecticut only 61 comply with DEP regulations designed to protect human health and the environment. Boren said the Solid Waste Management Unit is working with towns to convert unsanitary "dumps" to proper "landfills" by training equipment operators in proper disposal



methods and enforcing environmental regulations.

Enforcement with a town is usually accomplished through a cooperative approach of negotiating a Consent Agreement, in which the state and municipality formally commit to make necessary improvements on the disposal site.

This method suits Boren's personal view on state government and accords with DEP's enforcement policy. The state's job, Boren says, "should be to regulate and assist, not just regulate. When we find a problem we are also prepared to help solve it. So the first thing we do is send out training officers to advise on engineering services. If all else fails we'll issue an Order, which is enforceable by the Attorney General's Office."

A priority of the Unit is to reduce overall landfill usage, since the amount of suitable landfill space is dwindling. According to Boren, a statewide system of resource recovery plants could eliminate half the 144 landfills in the state, and reduce the land area being used by an even greater amount. The Bridgeport plant will close all 13 landfills now in use in the Greater Bridgeport area and open one new disposal site for residue and emergency use in case of a plant breakdown.

Incinerators--Of the 23 incinerators operating in the state only 4 meet air pollution control requirements. Outmoded incinerators emit particulate matter and sulfur oxides and, in Boren's words, "some are so ineffective you can read a newspaper after it's been through the incinerator."

The strategy in most cases is to discontinue the use of old incinerators as resource recovery plants become operational.

"It's cheaper to tie-in with resource recovery than to build a new incinerator," Boren said. "The Bridgeport plant will phase out five outdated incinerators in the area. Those that are left already comply with Clean Air Regulations."

Recycling--DEP provides technical assistance to towns developing recycling and source separation programs, considering these acceptable methods of volume reduction and maximum resource recovery.

Recycling refers to an arrangement in which consumers separate materials such as glass, metal and paper from their rubbish and drop it off at designated locations. In source separation the town picks up the separated material at curbside.

Ninety communities in Connecticut now have recycling or source separation programs, run by municipalities, private groups or service organizations. In East Hartford, for example, people take newspapers, color-sorted glass, and "white metal"--stoves, refrigerators and other large appliances--and drop them off at five fire stations in town. During the first nine weeks of operation the town collected 75 tons of color-sorted glass, earning $1,500. That was in 1973.

More recent figures show greater earnings: $4,256 for glass collected since February, $4,000 earned for white metals during the last year.

Recycled newsprint earns money, but at varying rates. According to Art Mulligan, East Hartford's Public Works Director, "the value of newsprint was up to $45 per ton at one point and then went down to zero. Only in the last three months it's begun to pay again, ranging from $5 to $25 per ton. Considering this fluctuation we've still made $730 in the last three months."

(Continued on page 15)

New Publications

- *FACTS ABOUT CONNECTICUT'S CLEAN WATER PROGRAM* Available from the DEP Office of Information & Education (Room 112, State Office Building, Hartford, CT 06115), this pamphlet contains a concise factual summary of Connecticut's clean water program from 1886 to the present. Available in quantity.
- *DIRECTORY OF ENVIRONMENTAL GROUPS IN NEW ENGLAND, 1976 EDITION* Published by the U.S. Environmental Protection Agency, this directory is available free of charge from the Office of Public Affairs, Room 2203, U.S.E.P.A., John F. Kennedy Federal Building, Boston, MA 02203.
- *ENERGY CONSERVATION ON THE HOME GROUNDS: THE ROLE OF NATURALISTIC LANDSCAPING* Edited by Professors William Niering and Richard Goodwin of Connecticut College, this highly-informative Connecticut Arboretum Bulletin addresses the issue of decreasing the size of suburban lawns by using low-maintenance naturalistic plantings in order to conserve energy, pesticide usage, and fertilizer. The Bulletin (#21) is available at a cost of $1.20 per copy postpaid from the Connecticut Arboretum, Connecticut College, New London, CT 06320. Discount for large quantities.
- *EDIBLE PLANT CARDS* This collection of 50 identification cards, enclosed in a convenient accordion-fold vinyl pack, lists all edible plants throughout North America. Each card contains a color plate, line drawing, scientific and common names, description location, and notes of interest. Published by Life Support Technology, Inc., PO Box 13, Manning, Oregon 97125, the cards are available for $5.95.
- *SKI TOURING GUIDE* This is a complete manual of ski touring, containing information on technique, equipment, safety measures, snowshoeing, and touring areas and trails. Annual Schedule of events also available. Guide is $3.00 from the Ski Touring Council, Troy, VT 05868.

New Open Burning Regs Issued

The Department of Environmental Protection is proposing changes in its regulations for the control of open burning in Connecticut. These changes have been submitted to the Legislative Regulations Review Committee of the General Assembly and the State Attorney General's Office for review. If they are approved, they will go into effect as part of DEP's Administrative Regulations for the Abatement of Air Pollution.

Aimed at reducing the particulate matter component of air pollution, Connecticut's original open burning regulations were passed in 1967 as part of the Public Health Code, and incorporated in 1971 into DEP's Administrative Regulations as Section 19-508-17.

The following changes are proposed:

1) Merging current operating guidelines with Administrative Regulations. Previously, operating guidelines for local officials and Administrative Regulations were separate documents. The two will now be merged to eliminate confusion.

(2) Allowing, in certain cases, the open burning of brush on residential property with the receipt of a burning permit, which will be issued by local open burning officials after careful review of the burning conditions.

(3) Exempting from permit review open fires used to train fire-fighters.

These changes are proposed following a public hearing held by DEP on June 24, 1975. For more information on the new open burning regulations, contact Fran Rooney, DEP Air Compliance, 566-3160.

A FISH with an excess of character

BY M.R. MONTGOMERY

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He was, by all accounts, a beautiful fish.

Now it is true that it is in the nature of fish of a single species that they all look alike, so that if one is handsome, it is not from any particular personality or grace, or, as the old man used to say, "duende".

The fish in question passed away suddenly last week from an excess of character, not the worst way to go when the time comes.

For the past several years, people who love beautiful fish have been attempting to restore a run of Atlantic salmon to the Connecticut River and its tributaries, an undertaking roughly equal in difficulty to restoring oysters to the Back Bay or guilelessness to Henry Kissinger.

The salmon that died untimely was the first fish to return to the river and survive long enough to be captured and confined.

He was born, so to speak, in a small and relatively clean tributary near what was an old Dutch trading post back in the days when the Connecticut Valley was alive with salmon and beaver. The Dutch stayed long enough to name the brook Tar Kill and then retreated southward to the Bowery.

By the time of the Revolution, the Connecticut salmon fishery was reduced to stragglers. Water power dams in every brook and stream ground corn and felled wood from the rich valley and blocked the spawning grounds.

By the end of the Civil War it was all lost and gone. Yankee ingenuity produced the articles of war with water power from the main river itself.

So this year's fish was something of a sign of change, the first evidence of an attempt to restore something lost, an effort to use the river for the contemplative ways of angling as well as the commercial uses of power. He was caught, symbolically enough, in a fish-counting house above a fish-lifting device operated by the Holyoke Water Power Company and the Division of Inland Fisheries and Wildlife.

His death, if it had happened to a human being, would have been called accidental by the coroner. He was living for the summer in a fish hatchery, waiting for the spawning season. He could have fertilized nearly a hundred thousand eggs from female salmon captured in Maine. He would have had more sons than Hercules.

What killed him was what brought him back to the river, his own nature. Confined in a small pool at a fish hatchery, he managed to leap out, pushing his way from under a protective nylon net, and drowned in a sea of air.

He could not find, in that confined water so far from the Connecticut, whatever contentment it is that salmon find when they reach their home. Whatever fire drove him to Holyoke eventually drove him to his death.

The tragedy of losing this fish, to people who love salmon, is that he knew mysteries no scientist knows, no fisherman understands, no historian can relate.

A great deal is known about the race of salmon, their biology, their habitat, how to angle for them, even how to cook them.

But these are many little things. The fish knew one big thing. Alone among hundreds of thousands of infant salmon released, he knew where in the ocean to go and grow, when to return, how to find the river from a distance as far as Greenland, and how to struggle past everything from porpoises to pollution and reach Holyoke. One of the small bits of knowledge that men have about salmon is this: his offspring would have inherited some of the understanding he had, would have retained some of his exceptional vigor.

Fish, by all accounts, have no individuality. But that is not the same as saying that none of them are remarkable. As I said, he was regarded as a very handsome fish.

Conservation Commission Corner

by Gay Ewing

Connecticut Assoc. of
Conservation Commissions

MIDDLEFIELD

The Conservation Commission will work with the Middlefield Land Trust, Inc. to coordinate a land acquisition program. Resources will be pooled with the Trust to attain the common goal of preserving open space.

EAST HARTFORD

A Rose by any other name...When the good ship Rosewater leaves dock to sail the waters of the Hockanum River she has a job to do...The Cleanup Committee of the East Hartford Conservation Commission admire the Rosewater like all good sailors do their craft. Flat bottomed and carrying special gear, she has already removed over 150 tons of debris and junk from the river and its banks. When the ship returns to shore with its catch the river is that much cleaner and more beautiful.

Chairman William J. Murphy might be talked into letting the Rosewater ply other waters, since she is portable and can be moved by truck.

In addition to the cleanup program, the Commission is currently monitoring and evaluating DO (Dissolved Oxygen) and BOD (Biochemical Oxygen Demand) on all rivers and streams in East Hartford. Comparative analysis tests covering 1970 and 1973 indicate a significant water quality improvement in the Hockanum River.

NORTH HAVEN

The North Haven Commission has a good representation of interests on the Commission. The chairman keeps the meeting going without dominating the group. Visitors who attend meetings receive courteous treatment. And the commission does a great job of protecting the environment!

LAND TRUSTS

I am asked a great many questions about land trusts. Several misconceptions need clarification:

1. A land trust is a private non-profit corporation and NOT part of town government. As such it is governed by all local and federal laws which pertain to a non-profit corporation.

2. The financial status of a town or its population has nothing to do with the success or failure of a trust. No town can afford NOT to establish a group which can receive gifts of land and conservation easements.

3. Should a trust encompass several towns or be established on a one-town basis? This is entirely a local decision. The Trust needs to have a potential constituency. It needs to work with local conservation commissions.

If you need more information please give me a call. Send in your minutes so that I can glean news items...We want everyone to know about interesting and successful projects.

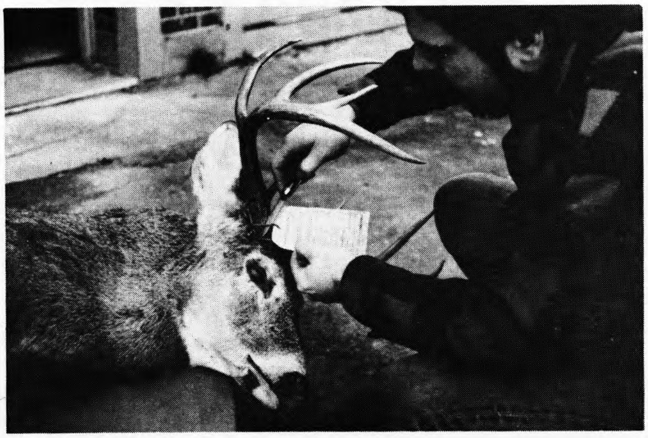
MRS. GAY EWING, GENERAL DELIVERY,
OLD LYME, CONNECTICUT 06371
434-8495

How A Deer Check Station Operates

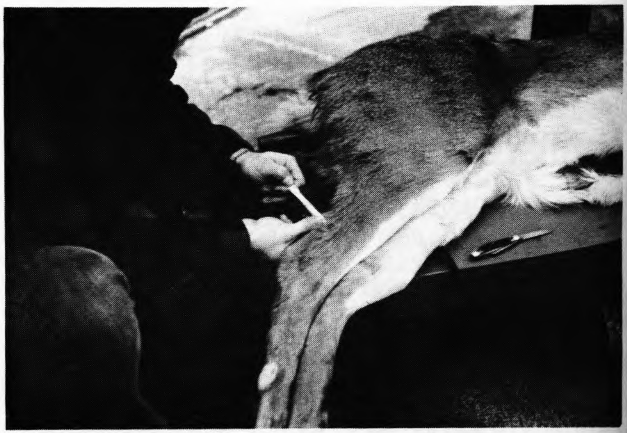
Any person taking a deer by bow and arrow, shotgun or muzzle-loader must now register the deer at an official Department of Environmental Protection Check Station. Locations of the various check stations are indicated on the map side of the 1975 Connecticut Deer Season Field Guide. Wildlife biologists at these strategically-located check stations will collect biological information on deer taken. This is the first year that DEP is collecting such information.

The state deer herd is estimated to have tripled in size in the last 15-20 years. The physiological condition of the deer herd, determined by collecting biological data, will indicate the quality of the deer habitat in Connecticut.

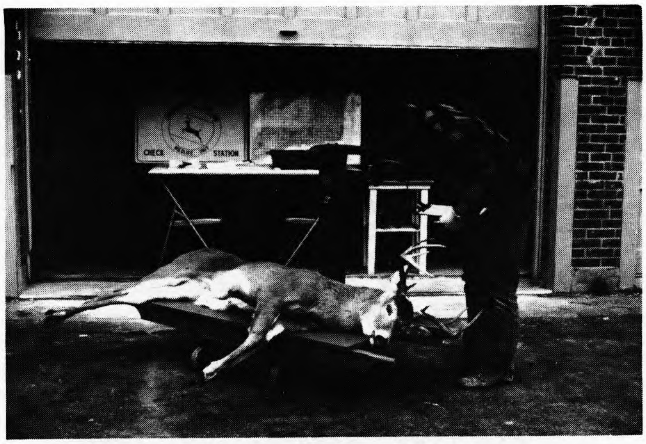
Some of the operations and techniques used at the deer check stations are pictorially explained below.



1 *A Transportation tag is issued with all deer licenses or permits. The tag must be immediately attached to the deer at the take point in the field in order to legally transport the deer to the nearest check station. The check station operator removes the tag and checks it for proper completion.*



2 *A metal self-locking, special numbered identification-possession seal is placed on the tendon of the rear leg.*



3 *All deer are weighed on certified platform scales. The weight of each deer is correlated with its age, providing biologists with an indicator of physical condition and habitat quality.*

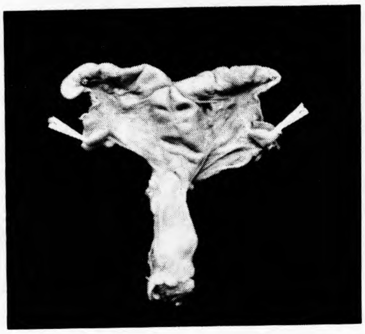
FOR MORE INFORMATION ON DEER CHECK STATION OPERATION, CONTACT PAUL HERIG, DEP DEER BIOLOGIST, WILDLIFE UNIT, 566-2841.

4 Hind foot length is an indicator of skeletal formation and again reflects nutritional values of the habitat.

5 Chest girth is an indicator of physiological condition, and is compared to actual weight. Various measurements will be equated to weights. Taped measurements can then be used by Conservation Officers throughout the year, in place of weight estimates.

6 Antler size is a prime indicator of the nutritional quality and quantity of the habitat. Since body growth and maintenance requirements are met first, nutrient intake in excess of these two needs is then converted to antler growth.

7 Incisors (front two teeth) are removed, softened, thinly sliced and mounted on microscope slides. The deer's age can be determined by counting the cementum layers, similar to counting rings on a tree trunk. This aging technique is the most accurate available and surpasses that of the previously-used tooth wear method.



8 The analysis of female reproductive tracts will give biologists an indication of the spring fawn crop. From the reproductive tracts, biologists can determine the age of the doe and the number of embryos she produced. Applying statistical methods to the information from the tracts, biologists can then determine the reproductive potential for the herd as a whole.

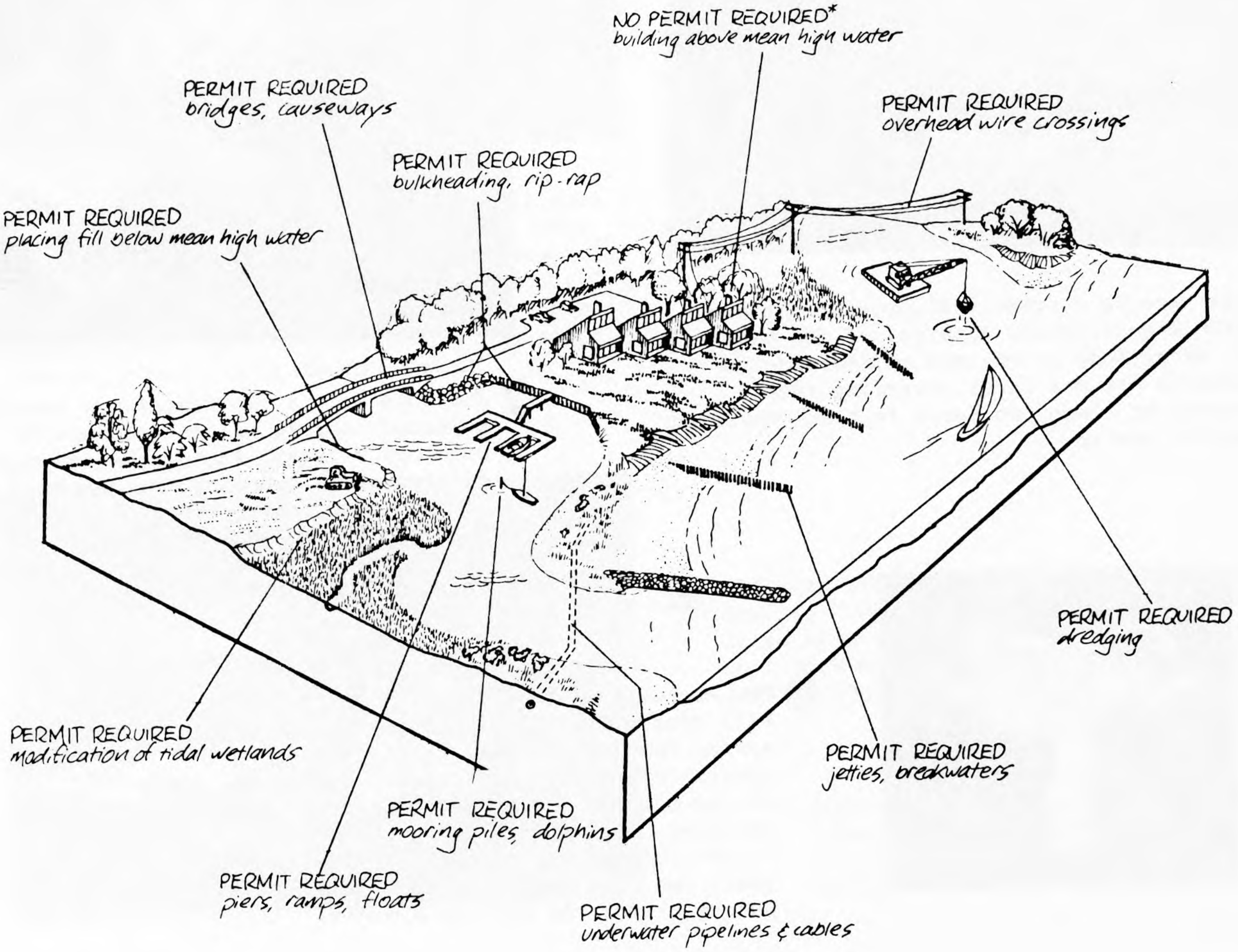
Now Available:
Developers' Handbook

A new publication entitled The Developers' Handbook has just been completed and published by the Coastal Area Management Office of DEP. Written in a non-technical style accompanied by numerous illustrations, the handbook is designed to help developers understand environmental considerations and the various DEP regulatory programs, in order to factor them into the development process.

The handbook was written and illustrated by Allen Carroll, formerly of DEP's Planning and Research Unit, now a freelance writer and graphics artist. In it he covers the topics of air, land and water use, coastline development, and building site evaluation. Each topic is explained in terms of the natural systems, together with examples of sound development practices. The Handbook should make the legal maze of environmental laws more manageable in addition to providing some basic information on subdivision planning.

Recommended to all developers, conservation commissions and local officials, as well as to members of the general public, the Handbook is free and can be obtained by writing to the DEP Office of Information & Education, Room 112, State Office Building, Hartford, CT 06115. Only a limited number of copies are generally available; consequently we can only send one copy of the Handbook per request.

THE ILLUSTRATION BELOW IS TAKEN FROM THE DEVELOPERS' HANDBOOK.



from the field

by Douglas Starr

It was an orientation trip, and I went along to see something I'd never known about: that there are four Indian reservations in Connecticut.

I accompanied Brendan Keleher, Indian Affairs Coordinator at DEP, to the Western Pequot reservation in New London County. Along with us this day was Roger Smith, recently employed by American Indians for Development, Inc., to work with the Indian tribes represented on the State Indian Affairs Council. Smith, a Golden Hill tribal member, is undergoing an orientation period and will in the future be acting to facilitate tribal input to the Council activities.

The reservation occupies about 213 acres of hilly forest in Ledyard. Like other Connecticut Indians, only a small number of Western Pequot actually live on the reservation.

The other three Connecticut reservations include the Eastern Pequot in Stonington (225 acres), the Schaghticoke in Kent (400 acres) and the Golden Hill-Paugusset in Trumbull (1/3 acre).

A representative of Connecticut Light and Power Company was waiting at the reservation to see Keleher. A new Indian family had moved in last fall and the company was planning to remove a few trees to put in a power line. (Tribal members may occupy reservation land upon the consent of the tribal leaders and determination of eligibility by the Council.) Keleher noted which trees were to be cut and said he'd convey the information to the Western Pequot Tribal Council.

There are 5 dwellings on the reservation, housing about 17 people. The land was set aside in 1667 by the General Court of Connecticut on 2000 acres. But from then until the middle of the nineteenth century sections were sold until now only 213 acres remain.

"The state has not always been forthright with the Indians," Keleher noted, "and even in modern times has seemed distant and secretive."

Before being placed with DEP in 1973, Indian lands were under the jurisdiction of the Department of Welfare. "The Indians objected to staying there because of the negative stigma often associated with the Department and the treatment they received," Keleher said. "From 1941 to '73, when they were under Welfare's administration, tribes were prohibited from operating any commercial enterprise on their property. There was little opportunity for Indian input to decisions."

For several years Connecticut Indians worked on a bill to create an independent commission, comprised of a majority of Indian representatives, to administer reservation lands. But after a veto in 1971 and a threatened veto in 1973 they settled on a compromise measure. The Department of Environmental Protection became responsible for reservation lands and an Indian Affairs Council was formed as an advisory body. The Council consists of representatives of the 5 Connecticut tribes (the Mohegans are landless).

The new arrangement was "the first time in modern times Indians even acted in an advisory capacity to their fate," Keleher said.

In 1973 DEP hired Keleher to coordinate the Department's activities in carrying out its responsibilities towards reservation land and, in his liaison capacity, to provide technical advisory assistance to the Council. He had been a graduate student specializing in Indian studies at UConn.

Working with DEP, tribes are taking an active role in determining the future of their lands. We walked through a section of the forest that the Western Pequot plan to develop.

In one area hardwoods cover the site that has been designated for residential use. DEP field personnel were on the reservation this fall marking the location of these family lots. The tribe and Council are also developing a reservation land use plan that provides for the potential inclusion of a large community garden and a tribal business or shop.

Problems confronting the Western Pequot are typical of those facing all Connecticut tribes--at least those that have land:

--There is the question of boundaries.

Though the current Western Pequot boundaries have been established there is some question by the tribe about adjoining land that was sold in the past. This is a lingering issue that our history books fail to record and fosters skepticism in the minds of tribal members as development comes to the surrounding areas.

In other cases borders have not been defined. The Golden Hill and Schaghticoke reservations have never been surveyed.

"It's DEP's responsibility to conduct the survey," Keleher said, "but we haven't been allocated the money for it. The Indian Affairs budget is very small."

--It is not known how many Indians there are in Connecticut, or how many belong to each tribe. The Indian Affairs Council estimates the number to be about 5000. The Council and DEP are conducting a census to determine the number, and are halfway through the task.

--Maintenance poses a problem. According to Connecticut Statutes DEP is responsible for maintaining reservation lands and all structures on them. Keleher noted that the Department is still trying to establish a routine maintenance schedule but little can be done without funds. "Right now we're concentrating on certain priority items - those necessary for adequate housing and sanitary facilities."

* * *

Keleher sees the present situation as "not the best, but better by leaps and bounds over what it was in past years."

"I'd like to see the Indian Affairs Council become a separate entity in the state. But at this point the Council is new, having only been set up in 1973. My position now is to help strengthen the Council and solidify its position in Connecticut.

"In the future the state may take a different, though still active role. We can recognize the Indians' autonomy and at the same time provide the assistance and funding required by the legislation."

municipal land acquisition

The DEP municipal open space grant-in-aid program, begun in 1965 under Commissioner Joseph N. Gill, has for many years been a popular and highly effective means of preserving open space. It has assisted many communities in the acquisition of needed sites for recreation and preservation. The driving force of the program has been the U.S. Bureau of Outdoor Recreation's Land and Water Conservation Fund, which provides Connecticut with approximately $3,000,000 annually to be utilized for State and municipal recreation-related projects.

In this period of fiscal crisis, it is gratifying to see that communities are continuing to be interested in this program. A regular feature of the Citizens' Bulletin will be to list selected acquisitions which would be of interest to other communities who may also be considering such action. Here are four examples;

- The largest purchase in recent memory has been the Town of Guilford's "Timberlands Project". The 595-acre site includes a 9-hole golf course, frontage on Upper Guilford Lake, and a large expanse of hilly forested land which can meet a great variety of recreational needs. The town recently received a reimbursement from the Bureau of Outdoor Recreation for 50% of the purchase price.

- The city of Manchester has acquired 157 acres of land along picturesque Lydall Brook, which was previously owned by the Manchester Water Company. In addition to proposed recreational uses such as hiking trails and picnic and camping sites, the property will also serve as protection for water supply reservoirs further down the brook.

- The town of Ledyard acquired a large tract, 72.18 acres of land, adjacent to existing town-owned property. It is centrally located and is expected to be the focal point of the town's recreational system. There are plans to build a road, swimming facility, and hiking trails.

- The town of Ridgefield acquired 26 acres along the western side of Florida Road. The purpose of the purchase was to enlarge a previously-owned parcel, the Boulton Reserve. The topography of the area is varied, including rocky bluffs, sloping hillsides, and wetlands.

Connecticut Forest Fire Control: 1600-1910

By Charles F. Snyder
DEP Fire Control Officer

This article briefly covers the period from the colonization of our State to the beginning of a forest fire control effort. In the future, we shall cover the development period (1910-1942) of forest fire control, and finally the modern period that will bring us up to date.

Fire has menaced Connecticut's forests from the time the first man set foot upon the state's tree-covered landscape. Our Indian predecessors not only used fire for clearing land for villages, but also for decreasing the cover surrounding the villages. By burning out the cover, the Indians prevented their enemies, primarily man and animal, from creeping up unseen and attacking them. The Indians also benefited from this cleared area because it protected them from fire. In those days, if a fire started in the woodlands, it was only stopped when mother nature provided rain or some natural barrier, such as a cliff, river, or open field.

From the time of the State's colonization, some people have shown a lack of respect and concern for our forested heritage in Connecticut. In the early days, fires burning in the forests were untended until buildings were threatened. Then, all neighbors dropped what they were doing to prevent the flames from engulfing the buildings.

Although the general population was not concerned with fires burning in our woodlands, early residents took at least one strong legal step to protect the State's forests. Among the laws of Connecticut for 1673 was the following:

> *"It is ordered that by the authority of this court: that whosoever shall kindle any fire in woods or grounds lying in Common or Inclosed, so as the same shall run into such Common Grounds or Inclosures before the first of March or after the last of May, or on the last day of the week, or on the Lords' Day, shall pay all damages as come thereby, and half so much for a fine, then be corporally punished by warrant from one magistrate or more, as the offense shall deserve, not exceeding twenty stripes for one offense; Provided any man may kindle fire upon his own ground at any time so as no damage come thereby, either to the Country or any particular persons.*
>
> *And whosoever shall wittingly and willingly burn or destroy Frame, Timer, Hewn, Sawn or River heaps of Wood, Charcoal, Corn, Hay, Straw, Hemp, Flax, Fence, Pitch or Tar, or any other estate he shall pay double damages."*

This was the first forest fire law in our state, and remarkably enough, portions of this law are still on the books 300 years after the original decree.

In 1773, additional legislation made landowners liable for fires they set on their own land if those fires damaged adjoining property. As with other colonial legislation on forests, however, these laws were aimed more at saving life and property accumulated by human effort than preserving timber supplies or preventing environmental damage.

As the years went by, forest fires continued to cause damage to buildings and other property. The developing railroad system soon became recognized as a fire hazard, and in 1849 the Connecticut General Assembly passed a law holding railroad companies liable for damages resulting from a fire set by a locomotive or a railroad employee. However, an act of 1881 alleviated these unusual responsibilities by affording the railroads an insurable interest in the property along the right of way.[1]

Mr. Bronson with his fire truck

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[1] Kinney, J. P. 1917. The Development of Forest Law in America, John Wiley and Sons, Inc., New York

In 1902 the General Assembly approved an act concerning the "Reforestation of Barren Lands". Under this act the Agricultural Experiment Station was authorized to appoint a State Forester to buy land for a state park (later called a state forest), to plant such land and hire personnel to carry out the work.

The Rainbow Plantations were started in Windsor in 1902 and planting continued until 1912. These were among one of the first experimental plantations in the world, for many years a showplace visited by many students and foresters. The State no longer owns the land -- it was sold in 1938 -- but remains of the plantings are still visible.

In 1905, the State Forester was Austin Hawes, a man deeply concerned about the Rainbow Plantations and the future of forestry in Connecticut. Mr. Hawes was also concerned about lack of organization and crude methods of fighting forest fires that were common everywhere. The following is an account by Mr. Hawes of a fire near the Rainbow Plantations on May 15, 1905:

"Tuesday morning a forest fire sprang up several miles east of our land in Rainbow. It burned all that day and night and the next morning was only a short way from our plantation, so we had to fight it. The wind was blowing hard and the fire came on rapidly, burning way up into the tops of pine trees and making a terrible heat. We started a back fire on the other side of the road, and this did some good, so the fire did not jump the road where we had a fire line. In a corner where we had not plowed out our fire line it got over to our land burned an acre or so before we could put it out with shovels and wet bags. Then we found that the fire had circled around and threatened another place. It was like being in a battle to tell where to place the men, and was pretty exciting. It was burning so hotly on the other side that we couldn't put it out, and might have lost our plantation, except for a plow we borrowed. With this and a horse we made some furrows and succeeded in stopping the fire without losing one planted tree. This was the worst fire known in that region for a great many years. Altogether it burned over about 8,000 acres."[2]

The very personal experience Mr. Hawes had with this devastating forest fire prompted him to pursue the need for a forest fire control organization. He drafted a bill establishing a town forest fire warden system, which was presented to the General Assembly. It became law in June, 1905.

These town forest fire wardens soon "developed" their own fire trucks. Mr. Elliott B. Bronson of Winchester was one of the first to develop his own fire suppression vehicle and it was used on many fires in the area. Mr. Bronson's son eventually served as Superintendent of State Parks and his grandson is presently employed by DEP's Natural Resources Center.

The period 1905 to 1910 saw a number of changes in our town forest fire warden system and our state forestry unit. A bill that was introduced into the legislature made the State Forester ex-officio State Forest Fire Warden. He thus became the supervisor of all town fire wardens who were appointed by respective selectmen. By 1907, 138 towns had appointed their forest fire wardens.

The costs of forest fire suppression at this time were borne by the town which was reimbursed one-quarter of the expense by the state and one-quarter by the County. Our forest fire wardens were paid $ .25 per hour while our forest fire fighters were paid $ .20 per hour--quite a difference from today's wages. Moreover, it was hard work. Tools of the trade included wet sacks, cedar boughs, shovels, rakes and other hand equipment. Occasional use was made of horse drawn plows, water buckets, and the stirrup or bucket pump that was known as the "Single Forester."

Austin Hawes in his report of 1910 stated that cooperation between towns on forest fires was highly important and he recommended the use of a telephone to speed communications. He also stated that a lookout was being planned on Mount Ochepetuck, locally called Bald Hill in Union, and that the person living on this hill will keep a lookout for fires each day during the dry season of 1911. This was the beginning of our lookout tower system and also the point of time when our fighting forces really began to control the spread of forest fires.

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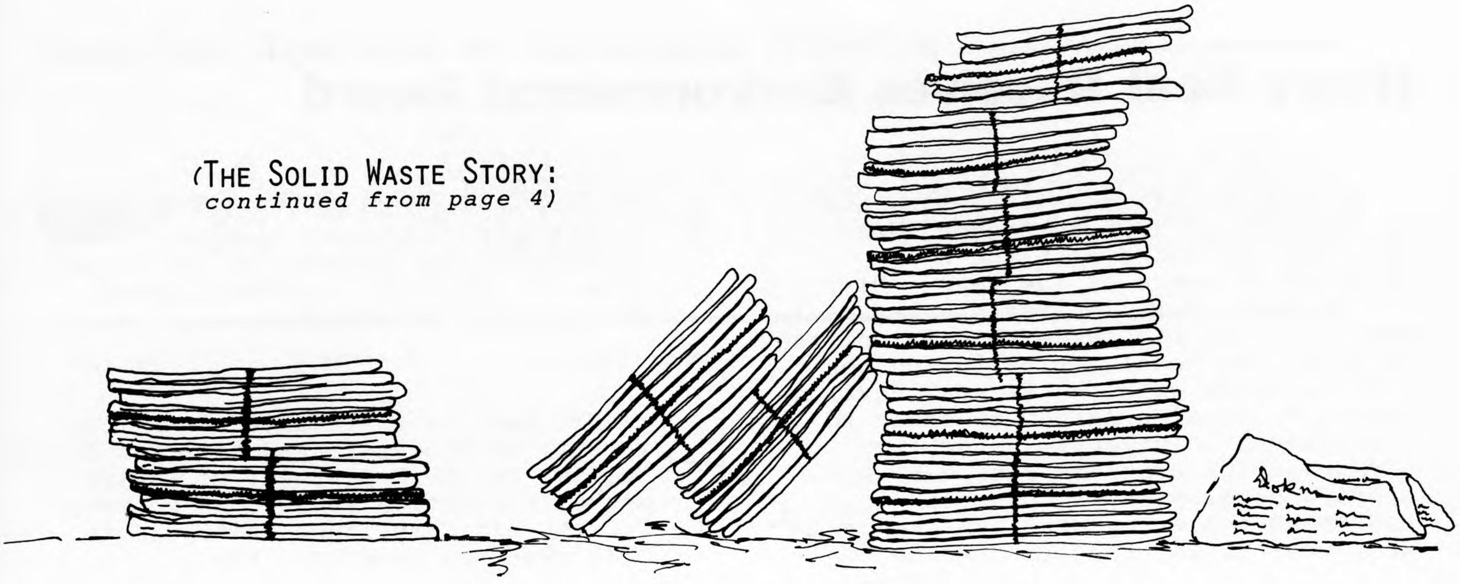
[2] Unpublished "History of Forestry in Connecticut" Austin F. Hawes

(THE SOLID WASTE STORY:
continued from page 4)



These may not seem like substantial profits for a town of 58,000. But one should note that previous to recycling, these materials represented a liability of upwards of $5 a ton at the local landfill and $12 a ton at the incinerator. Now they create revenue.

Bulky wastes--Bulky wastes include large objects such as demolition debris, tree trunks, and tires. Too large to be disposed of in normal landfill sites, too solid to be broken into smaller pieces, these materials are buried in special bulky waste disposal sites.

Tires represent a special nuisance, being resilient, non-compressible, and having no resale value. A new development in this area is the mobile tire shredder, which two firms in Connecticut now operate. For 50¢ a tire they shred and take away a town's waste tires. An alternative arrangement is to give the firms all recyclable waste and receive a price for it, minus the cost of tire-shredding and collector's fees.

It is also interesting to note that tires have a high BTU content--a measurement of potential heat production. If a way can be found to burn them cleanly, tires may someday become a source of energy.

Grants to municipalities--In 1969 the state legislature authorized $12 million to towns and regions for solid waste related construction and planning, with another $2 million authorized in 1972. Of the $14 million total, $11 has been expended. The remaining $3 million will probably not be spent, however, since the State Bond Commission has not allocated the funds. According to Boren, "The Bond Commission felt it necessary to delay allocating the remaining funds in light of the present financial situation. And frankly, I don't know when the situation will change."

"Meanwhile, all of our training, assis assistance and regulatory programs continue."

* * *

Boren hopes for several changes to accompany the statewide management plan: more recycling locally, and a breakdown of local barriers as a regional approach to dealing with solid waste is used.

A turnabout is taking place in Connecticut, one that may serve as an example for the rest of the nation: that solid waste, traditionally seen as a municipal burden, may soon become a local resource.

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Henry Beal Receives Environmental Award

At the EPA Citizens' Briefing held on December 5, 1975 in Boston, Henry Beal was presented with the EPA Environment Award of the Year. Director of DEP's Air Compliance Unit, Beal was cited for his leadership in uniting 24 state and local air pollution control agencies with the Federal Environmental Protection Agency in order to formulate a solution to automotive air pollution problems caused by hydrocarbon emissions. Connecticut had sponsored a regional conference September 22-24, 1975 to develop hydrocarbon control strategies for both mobile and stationary sources. The conference was attended by 18 states from New England, the Mid-Atlantic region, and the Mid-West.

Mr. Beal is a graduate of the University of Wisconsin and Yale Law School. He came to the Department of Environmental Protection in 1972 as Counsel for the Air Compliance Unit, and in 1973 was appointed Director.

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THE EDITOR WISHES TO EXPRESS SINCERE THANKS TO ROSEMARY GUTBROD FOR HER INVALUABLE ART ASSISTANCE IN THIS ISSUE.

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